UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/092,358	03/06/2002	Keijo Ruotsalainen	944-005.007	7787

4955	7590	10/04/2006

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EXAMINER
WONG, LINDA

ART UNIT	PAPER NUMBER
2611	

DATE MAILED: 10/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Advisory Action *Before the Filing of an Appeal Brief*	Application No. 10/092,358	Applicant(s) RUOTSALAINEN ET AL.	
	Examiner Linda Wong	Art Unit 2611	

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED <u>11 September 2006</u> FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

   a) ☐ The period for reply expires _____ months from the mailing date of the final rejection.

   b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

     Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

<u>NOTICE OF APPEAL</u>

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

<u>AMENDMENTS</u>

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will <u>not</u> be entered because

   (a)☐ They raise new issues that would require further consideration and/or search (see NOTE below);

   (b)☐ They raise the issue of new matter (see NOTE below);

   (c)☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or

   (d)☐ They present additional claims without canceling a corresponding number of finally rejected claims.

     NOTE: _____. (See 37 CFR 1.116 and 41.33(a)).

4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).

5. ☐ Applicant's reply has overcome the following rejection(s): _____.

6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).

7. ☐ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

   The status of the claim(s) is (or will be) as follows:

   Claim(s) allowed: _____.

   Claim(s) objected to: _____.

   Claim(s) rejected: _____.

   Claim(s) withdrawn from consideration: _____.

<u>AFFIDAVIT OR OTHER EVIDENCE</u>

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will <u>not</u> be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).

9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will <u>not</u> be entered because the affidavit or other evidence failed to overcome <u>all</u> rejections under appeal and/or appellant fails to provide a showing a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).

10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

<u>REQUEST FOR RECONSIDERATION/OTHER</u>

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: <u>See continuation sheet.</u>

12. ☐ Note the attached Information Disclosure Statement(s). (PTO/SB/08) Paper No(s). _____

13. ☐ Other: _____.

KEVIN KIM
PRIMARY PATENT EXAMINER

Response to Arguments
Applicant's arguments filed 9/11/2006 have been fully considered but they are not persuasive.

Applicant's Remark 1:

The applicant contends the following:

"Thus, e.g. in case of a four-dimensional signal constellation, four bits are mapped (once) to four numbers which are then the coordinates of the symbol representing the four bits."

Examiner's Rebuttal to Remark 1:
The examiner respectfully disagrees. On page 1454, Section II, lines 24-30, Boutros discloses
"An n-dimensional QAM constellation is obtained as the Cartesian product of n/2 two dimensional QAM signal sets. A block of m bits is mapped onto the constellation by applying the Gray mapping in each dimension."

Boutros discloses "an n-dimensional QAM constellation", which indicates that the constellation has n-dimension, wherein n can be equal to 4. Boutros further discloses "A block of m bits is mapped onto the constellation by applying the Gray mapping in each dimension." This indicates Boutros will map m number of bits to an n-dimensional constellation. Referring to the example provided by the applicant's remarks stated above, m=4 bits and n=4 for a mapping of 4 bits in a 4 dimensional constellation.

Applicant's Remark 2:

The applicant further contends the following:

"Next, the first two coordinate numbers are used to modulate a carrier signal (e.g. two quadrature waves, i.e. a sine wave and a cosine wave), which is then transmitted, and then the second two numbers are used to modulate the carrier signal and then transmitted. This is what is intended by the recitation "in turn" in the claims, which applicant sees that the Office seems not to have taken into account in comparing the invention as claimed with the teachings of Boutros. After transmitting all four numbers of the four dimensional symbol, another four bits are mapped (once) to four numbers for a next four dimensional symbol, and so on."

Examiner's Rebuttal to Remark 2:
The examiner respectfully disagrees. On page 1454, Section II, lines 24-30, Boutros discloses
"An n-dimensional QAM constellation is obtained as the Cartesian product of n/2 two dimensional QAM signal sets. A block of m bits is mapped onto the constellation by applying the Gray mapping in each dimension."

Boutros discloses "n/2 two dimensional QAM signal sets." This indicates that the number of signal sets modulated is n/2. Each set is a two-dimensional, which indicates each set will have 2 coordinates. Thus, Boutros discloses modulating a first set of 2 coordinates, and then modulates a second set of 2 coordinates.

For these reasons and reasons as stated in the office action mailed 7/14/2006, the rejection of claims 1 and 3 and the objection of claims 2 and 4 is maintained.